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Press release

6 October 2014

Nobel Prize in Physiology/Medicine to two European Research Council grantees

It was announced today by the Nobel Assembly at Karolinska Institutet, Stockholm, that the 2014 Nobel Prize in Physiology/Medicine has been awarded to Professor Edvard I. Moser and Professor May-Britt Moser, both ERC Advanced Grant holders, together with Professor John O'Keefe, "for their discoveries of cells that constitute a positioning system in the brain".

On this occasion, European Commission President José Manuel Barroso said: *"I warmly congratulate John O'Keefe, May-Britt Moser and Edvard Moser on their achievement. I am particularly proud that both May-Britt and Edvard Moser are holders of European Research Council Advanced Grants. The ERC supports the very best pioneering researchers across Europe, and has made a real impact since its launch in 2007. This is why we decided on a significant boost for the ERC budget in our new research and innovation programme, Horizon 2020."*

The President of the European Research Council (ERC), Prof. Jean-Pierre-Bourguignon, commented: *"On behalf of the ERC, I would like to extend warm congratulations to this year's three Nobel laureates in Physiology or Medicine. We are very proud that the European Research Council has funded two of the winners - Professors Edvard I. Moser and May-Britt Moser. Their ERC Advanced Grants contributed in a significant way to their ground-breaking research on the navigation system of the brain. Today's news confirms that the ERC invests in the best minds – whether young or senior - to support their most innovative ideas at the cutting edge."*

This is the third time that a Nobel Prize goes to top researchers funded by the ERC since its launch. Through a highly competitive selection based on excellence, the ERC has supported some top researchers across Europe.



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Background

Today the 2014 Nobel Prize in Physiology or Medicine has been awarded with one half to John O'Keefe and the other half jointly to May-Britt Moser and Edvard I. Moser, for their discoveries of cells that constitute a positioning system in the brain.

Professors Edvard I. Moser and May-Britt Moser, from the Norwegian University of Science and Technology in Trondheim, both hold prestigious ERC Advanced Grants for their research in neuroscience. All three laureates have participated in EU-funded research projects.

Edvard Moser and May-Britt Moser's research projects explore the functionality of "grid cells", i.e. the neural cells activated during spatial navigation. During experiments conducted on rats in 2005, they discovered that grid cells fired only when the animals moved to special locations. These cells, which co-exist with other cell types in the entorhinal cortex and connect with "place cells" in the hippocampus, form an essential network which has been compared to an inner GPS in the brain.

With his ERC funding, Edvard Moser has studied the functionality of the grid cells by switching cells 'on' and 'off' and by testing how this affects the firing of nerve cells in rats. His research has been funded by the ERC since 2008 with two consecutive Advanced Grants ([CIRCUIT](#) 2008, [GRIDCODE](#) 2013).

May-Britt Moser's research focuses on the hippocampus, a region in the brain for memory formation. During her ERC [ENSEMBLE](#) project, she has planned to identify key principles for the dynamic representation and retrieval of episodic memory in the mammalian hippocampus. Her research could have applications in healthcare, e.g. to better understand early memory deficits in infantile amnesia. Her ERC Advanced Grant, awarded in 2010, runs until October 2016.



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Edvard Moser has been a Professor at the Norwegian University of Science and Technology in Trondheim since 1998. He is currently Director of the Kavli Institute for Systems Neuroscience in Trondheim.

May-Britt Moser was appointed Professor of Neuroscience at the Norwegian University of Science and Technology in Trondheim in 2000. She is currently Director of the Centre for Neural Computation in Trondheim.

Project details

ERC grantee: **Edvard Ingjald Moser**

Host institution: University of Science and Technology in Trondheim (Norway)

ERC projects:

- Neural circuits for space representation in the mammalian cortex (CIRCUIT, 2008) funded with a € 2.5 million grant for five years
- Cortical maps for space (GRIDCODE, 2013) funded with a € 2.5 million grant for five years

ERC grants: Advanced Grant 2008 and 2013

ERC grantee: **May-Britt Moser**

Host institution: University of Science and Technology in Trondheim (Norway)

ERC project: Neural mechanisms for memory retrieval (ENSEMBLE) funded with a € 2.5 million grant for five years

ERC grants: Advanced Grant 2010

Today's award follows that of two ERC grantees:

- Prof. Konstantin Novoselov who was the first ERC grantee to receive a Nobel Prize in Physics 2010 for his work on graphene. He holds a Starting Grant and is amongst the youngest Nobel prize winners in history. See [ERC press release](#)
- In 2012, Prof. Serge Haroche (Collège de France and Ecole Normale Supérieure, Paris, France) was also awarded the Nobel Prize in Physics for ground-breaking experimental methods that enable measuring and manipulation of individual quantum systems. He holds an ERC Advanced Grants since 2009. See [ERC press release](#)

In addition, the ERC is currently funding five researchers who were already Nobel Prize laureates when they won their ERC grants: Prof. Theodor Hänsch (2005 for Physics; see [ERC press release](#)), Prof. Jean-Marie Lehn (1987 for Chemistry), Prof. Ada Yonath (2009 for Chemistry), Prof. Andre Geim (2010 for Physics), Prof. Christoforos Pissarides (2010 for Economics).

Furthermore, the ERC's governing body, the Scientific Council, has counted numerous Nobel Prize winners amongst its members. Currently, British researcher [Sir Tim Hunt](#) (2001 for Physiology or Medicine) is a member.



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Set up in 2007 by the EU, the **European Research Council** is the first pan-European funding organisation for frontier research. It aims to stimulate scientific excellence in Europe by funding the very best, creative researchers of any nationality and age, and supporting their innovative ideas. The ERC also strives to attract top researchers from anywhere in the world to come to Europe.

It funds young, early-career top researchers ('ERC Starting Grants'), already independent excellent scientists ('ERC Consolidator Grants'), and senior research leaders ('ERC Advanced Grants'). The substantial funding is awarded based on peer review evaluation and can amount to €3.5 million. The ERC operates according to an "investigator-driven", or "bottom-up", approach, allowing researchers to identify new opportunities in any field of research.

From 2007 to 2013 under the seventh EU Research Framework Programme (FP7), the ERC's budget was €7.5 billion. Under the new EU research programme (2014-2020), Horizon 2020, the ERC has a substantially increased budget of over €13 billion. Since its launch, the ERC has funded over 4,500 researchers.

The ERC is led by the ERC Scientific Council, composed of 22 top scientists and scholars, including the ERC President, Prof. Jean-Pierre Bourguignon. The ERC implementing arm, the Executive Agency, is led by Director Pablo Amor.

For more information:

ERC website

<http://erc.europa.eu>

Nobel Prize announcement

http://www.nobelprize.org/nobel_prizes/medicine/laureates/2014/press.html

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